

REMARKS

Claims 1-4, 6-10, 12-15 and 40 are pending. Claims 1, 9 and 40 are currently amended. Support for the amendment is detailed below.

Applicants' Response to the Rejection under 35 U.S.C. 103(a)

Claims 1, 9 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5879990 to Dormans et al. in view of US 6294430 to Fastow et al. In response thereto, applicants have amended claims 1, 9 and 40 to more distinctly claim the subject matter regarded as the invention. Specifically, the claims have been amended to recite the structural features of the multilayer gate electrode having a substantially uniform width and sidewalls are formed over the protective film and cover the entire side surfaces of the memory cells.

Dormans does not teach or suggest a gate electrode with a substantially uniform width because the memory cell varies in width to allow the control electrode 21 to overlap the floating gate 10. Modifying the memory cell of Dormans, so that a protection oxide covers both the floating gate 10 and the control electrode 21 and forming the gates at substantially the same width, would require a substantial reconstruction and redesign of the elements shown in Dormans as well as change the basic principle under which the memory cell was designed to operate. See MPEP2143.01VI.

Specifically, Dorman teaches a control electrode 21 which completely overlies the floating gate 10. See Fig. 9. Dorman teaches that this structure has the advantage that the

floating gate has a large flank surface, so that the capacitance between the floating gate and the overlapping control electrode 21 is comparatively great. See col. 6, lines 20-24. Hence, one of skill in the art would have to substantially modify the device of Dormans by adopting a structure wherein the control gate 21 does not overlap the floating gate 10. However, this structure is contrary to the teachings of Dorman but only by making this substantial modification would Dorman require the necessity of the protective film of Fastow to cover both the exposed surfaces of the control and floating gates. Hence, the modification cannot be made without a substantial reconstruction and redesign of the elements shown in Dormans as well as change the basic principle under which the memory cell was designed to operate.

In addition, applicants have amended claims 1, 9 and 40 by adding the sidewalls 16S to the claim. As depicted in the first and second embodiments, the sidewalls 16S are formed over the protective film 18 and cover at least the entire side surfaces of the memory cells. See Figs. 9I and 13A. Contrary, Dorman teaches spacer 23, in addition to the oxide 15 sidewalls. Neither of these sidewalls covers the entire side surface of the memory cell. Particularly, the side surface of the control electrode 21 is not covered, and a top of the floating gate does not have sidewalls. Similarly, Fastow does not teach the formation of sidewalls on the side surfaces of the memory cell, after the formation of the oxide layers 314/332.

Hence, applicants respectfully submit that in light of the amendments to claims 1, 9 and 40, the presently claimed invention is not obvious in light of Dormans combined with Fastow.

Amendment Under 37 C.F.R. §1.111
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Claims 6, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US5879990 to Dormans et al. and US 6294430 to Fastow et al. as applied to claims 1 and 9 above and further in view of US 6406959 to Prall et al. Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over 5879990 to Dormans et al and US 6294430 to Fastow et al. as applied to claims 1 and 9 above and further in view of Applicant Admitted Prior Art (APA). By addressing the rejection of the parent claims, as discussed above, applicants respectfully submit that the rejections of these claims are likewise addressed by nature of their dependency.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

A handwritten signature in black ink, appearing to read "Michael J. Caridi", is written over the printed name.

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